IRM Modular Training

Advanced C Programming

Overview

This training is for those who wish to exploit the advanced capabilities of the C Language and whose assignments require the writing of advanced code. It provides the critical guidelines for producing portable, efficient, and maintainable code. Extensive hands-on exercises are featured.

Objectives

Upon completion of this training, participants will be able to:

1. perform scaled pointer arithmetic using valid operator classes.
2. identify how to search the structures in a linked list.
3. enter the code to setup and process variable arguments.
4. identify the characteristics of C language variations.

Prerequisites

C Language Programming module or equivalent

Duration

3 units totaling 8 to 10 hours

Eligibility

Experienced C language users

Method of Completion

This self-paced training consists of three video tapes, three student guides, a mastery test, and exercises. Coordinate training through training officer.

IRM Modular Training

C Language Programming

Overview

This training provides a complete introduction to all aspects of this high/low level language. Its content is suitable for UNIX software as well as other C applications. Extensive hands-on exercises are featured.

Objectives

Upon completion of this training, participants will be able to:

1. describe the structured programming characteristics of C language.
2. specify the files required to produce an executable C program.
3. define each of the structured programming constructs.
4. describe the use of the compound assignment operators.
5. describe the syntax and use of the type cast operators for explicit conversions.
6. describe how to declare an array.
7. describe the syntax for defining a function.
8. describe how standard library I/O is performed in C language functions.
9. describe the storage required by a union.

Prerequisites

High level programming experience.

Duration

16 units totaling 35 to 40 hours

Eligibility

Those individuals who will be programming in C language and those responsible for fine-tuning their UNIX systems.

Method of Completion

This self-paced training consists of 16 video tapes, 16 student guides, a mastery test, and exercises. Coordinate training through training officer.

IRM Modular Training

ed Editor

Overview

This training program was originally part of the UNIX System Fundamentals course. It is the recognized editor for UNIX; however, NRCS chose to use vi EDITOR.

Objectives

Upon completion of this training, participants will be able to:

1. invoke the editor by executing the ed command.
2. execute the common editor commands.
3. execute the print command, p, to display lines.
4. use the special anchor symbols to refer to beginning and end of a line.
5. execute data transfer commands.
6. execute the global commands.
7. temporarily escape the editor session to execute a Shell level command.
8. use the HELP capability to provide diagnostic messages.

Prerequisites

Unix System Fundamentals or equivalent

Duration

4 units totaling 6 to 8 hours

Eligibility

End users, application developers, and technical support personnel

Method of Completion

This self-paced training consists of four video tapes, four student guides, a mastery test, and exercises. Coordinate training through training officer.

IRM Modular Training

UNIX System Administration

Overview

This training examines the duties and responsibilities of the system administrator including system maintenance, troubleshooting, installation, use support, configuration planning, and performance tuning. It is intended to provide a solid understanding of the files, commands, and procedures that the system administrator uses to manage, maintain, and modify the system. It is not intended to provide extensive hands-on skills. Nevertheless, examples will be demonstrated, and activities are included throughout the program.

Objectives

Upon completion of this training, participants will be able to:

1. list two programs that monitor the system and describe their output.
2. describe the three functional areas of the kernel
3. list and describe the five key kernel tuning parameters.
4. list the information and steps required to establish a new user's login account.
5. use the cpio command to perform a complete backup.
6. use the ps command to display system process activity.
7. use the df command to monitor file system space.
8. change the system run level.
9. create a file system on a floppy disk.
10. define the use of the sar and sadc commands.
11. use the command that will enable a printer to accept users' requests.

Prerequisites

UNIX experience

Duration

6 units totaling 6 to 8 hours

Eligibility

NRCS employees

Method of Completion

This self-paced training consists of six video tapes, a student guide, a mastery test and exercises. Coordinate training through training officer.

IRM Modular Training

UNIX System Fundamentals

Overview

This training provides a solid understanding of the UNIX System environment and its major features and facilities. This course applies to the UNIX system versions through SYSTEM V. Differences in Berkeley UNIX System and the C-Shell are indicated throughout the course guide.

Objectives

Upon completion of this training, participants will be able to:

1. understand the distinctive features of the UNIX system.
2. log in to a UNIX system and establish a password.
3. communicate with other users on the system.
4. understand the file system and access files using full and relative pathnames.
5. create and modify UNIX system files using the UNIX system text editor.
6. use 30 of the most useful UNIX system commands.
7. redirect command input and output.
8. execute command pipelines, grouped commands, and background commands.
9. set and change file and directory access permissions.

Prerequisites

None

Duration

15 units totaling 25 to 30 hours

Eligibility

End users, application developers, and technical support personnel

Method of Completion

This self-paced training consists of 15 video tapes, a student guide, a mastery test and exercises. Coordinate training through training officer.

IRM Modular Training

UNIX System Security

Overview

This training covers system security and security commands.

Objectives

Upon completion of this training, participants will be able to:

1. list different means of securing the root login.
2. identify the permissions associated with a file.
3. use the chmod, find and ncheck, size and sum, mesg n, who, ps, pwck, and newgrp commands.
4. identify the contents of the /etc/passwd file.
5. interpret the sulog.
6. identify the contents of the /etc/group file.
7. use the /etc/grpck command to verify the group file.

Prerequisites

Knowledge of the UNIX system

Duration

4 units totaling 8 to 12 hours

Eligibility

Systems administrators and UNIX system users

Method of Completion

This self-paced training consists of four video tapes and a student guide. Coordinate training through training officer.

IRM Modular Training

UNIX System Shell

Overview

This training is not for the occasional UNIX user. It addresses those aspects of the Bourne Shell that greatly increase the productivity and effectiveness of the frequent UNIX user. It covers every required Shell feature for user interface and programming, encompassing the content of computer technology. This training is intended to provide a solid understanding of the UNIX System Shell and its major features and facilities.

Objectives

Upon completion of this training, participants will be able to:

1. use basic Shell commands.
2. modify data.
3. combine variables, positional parameters, and keyword parameters.
4. initiate background processes.
5. process options and temporary files.
6. create interactive and restricted shells.

Prerequisites

Completion of UNIX System Fundamentals or equivalent

Duration

14 units totaling 30 to 35 hours

Eligibility

Frequent users of Shell command language and Shell programming

Method of Completion

This self-paced training consists of 14 video tapes, a student guide, a mastery test and exercises. Coordinate training through training officer.

IRM Modular Training

UNIX System Quick Start

Overview

This training is a UNIX literacy course, intended to provide a solid understanding of the UNIX system environment and its major features and facilities. It is not intended to provide extensive hands-on skills. Nevertheless, actual screen examples will be demonstrated and lab exercises included throughout the training program to provide a comfort level for later interaction with the UNIX system.

Objectives

Upon completion of this training you will be able to:

1. list the steps needed to gain access to the UNIX system.
2. list the three common UNIX shells, identify the prompt associated with each, and list characteristics they have in common.
3. use the command to display a list of all users currently logged on.
4. describe the organization of the UNIX file system.
5. define pathname and explain the functions of full and relative pathnames.
6. compare and contrast the features of the Bourne, C, and Korn shells.
7. list the names of the utilities used by the system administrator to perform administrative functions.
8. use the mail command to communicate with other users.
9. use the write command to communicate with other users.
10. use the online help facility to extract information.

Prerequisites

None

Duration

6 units totaling 6 to 8 hours

Eligibility

NRCS employees

Method of Completion

This self-paced training consists of six video tapes, a student guide, a mastery test and exercises. Coordinate training through training officer.

IRM Modular Training

vi Editor

Overview

This training provides a comprehensive tutorial of the most popular full screen editor available for UNIX systems. It provides a solid understanding of the vi Editor and its major features and facilities by addressing the fundamental concepts, commands, and features of the vi Editor, and the related ex line editor.

Objectives

Upon completion of this training, participants will be able to:

1. transfer data between the Edit Buffer and files.
2. identify the characteristics of the vi modes.
3. perform object-oriented cursor modifications.
4. use edit support commands.
5. execute Shell commands from within vi.

Prerequisites

Completion of UNIX System Fundamentals for Programmers or equivalent

Duration

4 units totaling 6 to 8 hours

Eligibility

End users, application developers, and technical support personnel

Method of Completion

This self-paced training program consists of four video tapes, a student guide, a mastery test, and exercises. Coordinate training through training officer.